Atlas On-Demand

Non-linear processing and delivery

Atlas is MediaKind's product line for all long-tail content processing and delivery.

Atlas On-Demand covers the use case of file-to-file transcoding and packaged delivery in public cloud.

Atlas On-Demand

Atlas On-Demand is a highly scalable solution to ingest, process and deliver long tail content to end devices. It is designed for content owners and service providers who need to deliver non-linear content to the consumer.

MediaKind simplifies the infrastructure complexities through a unified deployment portal and leverages native cloud orchestration and cloud object storage.

Within MediaKind's ecosystem, Atlas On-Demand comes pre-integrated with MediaKind's CMS to expand the scope with assets, metadata and workflow management features. It is also integrated with PRISMA for advertising use cases.

Atlas On-Demand benefits

- Designed for cloud: supports native K8S and cloud storage from cloud vendors
- Optimal resource usage through orchestrated elasticity, leading to a reduction in processing costs
- Faster asset availability through parallel encoding
- Best-in-class picture quality across multiple codecs (MPEG-2, H.264 & HEVC) and resolution up to UHD, including HDR with continuous enhancement every year
- Stereo and surround audio experience as your own personal home theater

Premium transcoding experience

Best in class video quality

Atlas On-Demand capitalizes on over 20 years of video compression expertise, incorporating proprietary in-house codecs designed to deliver optimal video quality across a spectrum of devices, ranging from 4K to mobile resolutions.

Furthermore, Atlas On-Demand paves the way for the future of immersive experiences through its ultra HD capabilities, offering a broader color spectrum and 10-bit encoding in HEVC. It also provide compatibility with High Dynamic Range (HDR) technologies.

Save on storage and bandwidth with CVQ

Atlas On-Demand ensures constant video quality for OTT by adapting bandwidth allocation to the actual complexity of each segment, thereby preventing over-allocating.

Wide audio support

Atlas On-Demand verifies and adjusts incoming audio levels, and carries up to eight audio tracks per channel.

Multi-devices delivery

Atlas On-Demand prepares encoded assets for end-user delivery with two packaging options:

- Just-in-time packaging and encryption with the widest variety of formats and DRMs (pull mode)
- Pre-packaged content publication to leading CDNs (push mode)

In both cases Atlas On-Demand delivers standard OTT formats including HLS/TS, HLS/CMAF, DASH and HSS.

It seamlessly integrates with various Digital Rights Management (DRM) platforms including key rotation, track keys, and CPIX key exchange.

Additionally it interfaces with multiple CDNs and cache servers.

Performance

Optimized quality and speed

Our research and development teams have created one of the fastest, high-quality file-based transcoders available today. Atlas On-Demand can encode files at speeds of up to 25 times real-time, depending on the number of outputs and resolutions required.

Fast asset availability

By dividing the ingested assets into multiple segments, Atlas On-Demand can deliver transcoded content very quickly without compromising on quality.

Our parallel encoding technology enables transcoding speeds of up to 12 times faster than standard transcoding.

Expand the scope

Atlas On-Demand is enhanced with additional components form the MediaKind portfolio:

- MediaKind Content Management System (CMS) for assets and workflow management
- MediaKind MediaFirst platform for a full end-to-end TV turnkey offer, as used in Direct To Consumer
- MediaKind PRISMA for stream conditioning, manifest conditioning and stream personalization to address ad-insertion, blackout use cases

Get even more using cloud

Orchestrated deployment

Atlas On-Demand relies on a microservices design and is deployed on clouds using Kubernetes (K8S) orchestration, which provides the highest flexibility in allocating processing resources.

Automatic scaling

Encoders are dynamically provisioned and deprovisioned in response to assets ingestion requests. Likewise, on the delivery side, the dimensioning of Just-in-time packagers is adapted to the traffic load generated by end-user requests.

Auto-scaling streamlines the system's sizing for typical usage while maintaining the ability to handle peak loads. This approach helps keep the Total Cost of Ownership (TCO) as low as possible.

Native Cloud Storage

Atlas On-Demand supports cloud object storage for both input and output, leveraging the inherent availability and scalability provided by cloud vendors.

The content class can be dynamically adjusted based on content age or popularity.

Atlas On-Demand also supports traditional ways to access storages (NFS, SFTP, and HTTP).

High Availability

Processing nodes are resilient to failure, so that the loss of a node is automatically addressed through the deployment.

Additionally, Atlas On-Demand can be deployed in multiple regions to achieve an even higher level of availability and the ability to upgrade seamlessly.

Specifications

Input

Input protocol	HTTP, HTTPS (compatible WebDAV, Azure and S3) FTP, SFTP, CIFS, NFS and any protocol that can be mounted on Linux operating systems
Input file types	A/V files: MPEG-2 TS (MPTS and SPTS), MPEG-2 PS (.ts, .mpg, .mpeg, ps, .vob), MPEG-4 (.mp4, .m4v, .f4v), MXF OP1a, QuickTime (.mxf, .mov)
Input audio and video codecs (decode)	**Video:** MPEG-2 SD/HD, MPEG-4/AVC (H.264) SD/HD, HEVC 8/10 bits SD/HD/UHD (H.265), IMX, XDCAM (HD & EX), HDV, DV, XAVC, AVC-Intra, ProRes, DVC Pro HD SD/HD, JPEG 2000, v210 HDR Ingest: PQ10, HDR10, HLG10, HLG10 backward compatible **Audio:** MPEG-1 Layer II, AC3, E-AC3, AAC, HE AAC and HE ACC v2, PCM, LPCM

File Output

File format (Encoding only)	MPEG-4 and Flash (.mp4) MPEG-2 TS (.ts)
Output protocol	HTTP, HTTPS (compatible WebDAV, Azure and S3) FTP, SFTP, CIFS, NFS and any protocol that can be mounted on Linux operating system

Packaged Output

Content Publishing	Support for pull scenarios in just-in-time packaging Support for publishing to local storage or to HTTP and HTTPS servers
Origin Server	Built-in live and VOD origin server for HLS, Smooth Streaming and DASH Custom HTTP headers management (Expiry settings, CORS headers…)
CDN	Interfaces to leading CDNs

Pre-Processing

File processing	Progressive ingest, partial file processing
Aspect Ratio	WSS; AFD; Video Index
Frame Rate	Conversion to NTSC (From 23.97/24/25/50fps to 29.97/59.94fps) Conversion to PAL (From 23.97/24/29.97/59.94fps to 25/50fps)
Metadata and VBI	IA 608/708 Closed Caption; DVB Subtitling, Teletext, SCTE-27, SCTE-20, ARIB B.24
Image settings	Brightness; Contrast; Saturation; Hue; Gamma; Temperature
Enhancement filters	**Video:** De-interlacing, cropping, letter boxing, stretching, 3:2 pull down, MCTF and spatial de-noising, MPEG-2 deblocking, cross-talk filter, diamond denoising, noise edge removal **Audio:** Loudness Control, True Peak, audio gain adjustment, mute

Video Encoding

	H.264	HEVC	MPEG-2
Video encoding	Baseline/Main/High to HD resolutions. 3 encoding presets (ultra-fast, fast, high quality).	8/10 bits to UHD resolutions. 3 encoding presets (ultra-fast, fast, high quality).	MPEG-2 Main to HD resolutions. 2 encoding presets (high quality, fast).
Rate control	CBR/VBR multi-bitrate with GOP alignment for adaptive bitrate formats.	CBR/VBR multi-bitrate with GOP alignment for adaptive bitrate formats.	CBR multi-bitrate with GOP alignment for adaptive bitrate formats.
Data rate	From 20 kbps to 50 Mbps	From 128 kbps to 120 Mbps	From 256 kbps to 40 Mbps
Resolutions	Ranging from 80x64 to 1920x1080 (1080p). From 50/60 fps to sub-framerate.	Ranging from 80x64 to 4096x2160. From 50/60 fps to sub-framerate. 8K compatible.	Ranging from 96x96 to 1920x1080 (1080p)
Multi-stream output	Multi-profile output including mix of H.264 and HEVC, interlace and progressive encoding. H.264 and HEVC are compatible with packaged output (MPEG-2 is not compatible).		
Parallel encoding	Up to 12 parts in parallel. Configurable at service level and job level		

Audio Encoding

Audio channels per service	As per licensed authorizations
Audio encoding	MPEG-4/MPEG-2 AAC, HE-AAC v1/v2, MPEG-1 Layer II (not compatible with packaging), MPEG-2 Layer II Dolby Digital (AC-3), Dolby Digital Plus (E-AC3) 5.1-ch or stereo
Pass-through	MPEG-1 Layer II, MPEG-2 Layer II, Dolby Digital (AC-3), Dolby Digital Plus (E-AC3) 5.1-ch or stereo, Dolby Atmos
Data rate	From 32 kbps to 384 kbps (1024 kbps for AC3 and E-AC3)

Encoding Post Processing

HDR	PQ10, HDR10, HLG10, HLG10 backward compatible, passthrough and conversions supported Tone mapping (HDR to SDR) and Inverse tone mapping (SDR to HDR) Dolby Vision 5 and Dolby Vision 8.1
Subtitle	EIA 608/708 closed caption, DVB Subtitling, Teletext, SCTE-27, ARIB B.24, SRT
Metadata	SCTE-35 pass-through (in-band), SCTE-35 cue point creation (out-of-band)
Dynamic ad insertion	Dynamic ad insertion workflow support from CMS metadata provisioning: assets are conditioned for pre/mid/post roll and cue point metadata are inserted
Logo Insertion	Insert an image from the file (png, jpg)

Packaging

Formatting	Apple HTTP Live Streaming (Over CMAF or TS), Microsoft Smooth Streaming, DASH Live and On-Demand Profiles
Subtitling	**Closed Captions:** WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH **DVB-Teletext:** WebVTT for HLS, DFXP for HSS, WebVTT or SMPTE-TT for DASH **DVB-Subtitles:** DFXP for HSS, SMPTE-TT for DASH
Multi Audio	Multiple audio streams per output for HLS, Smooth Streaming and DASH
Content Protection	Microsoft PlayReady DRM support for HLS/TS, Smooth Streaming and DASH Apple Segment for HLS / TS FairPlay support for HLS / TS and HLS / CMAF Adobe Primetime Access support HLS / TS (will be phased out in next version) Widevine, PlayReady, Mediaroom DRM and Marlin support in CENC mode for DASH Widevine and PlayReady support in CBC mode for DASH Key provisioning interface to leading CAS & DRM vendors Compatible with an CPIX server for key exchange.

Automated Workflows

REST API / CMS interface	Trigger asset processing from a public REST API. Ideal for CMS integration.
Automated Packaging	Ability to trigger packaging automatically after encoding, without any additional request.

Monitoring and Control

Control	Access through API and GUI is provided by MediaKind
Alarms	Web UI, SNMP Traps, Prometheus alerts
Monitoring and logs	Encoding farm job monitoring, service jobs, job logs System and application Grafana dashboards
Reports and stats	Encoding farm reports to track usage of the solution Service statistics Prometheus metrics for in-depth monitoring
Reliability	High availability with MediaKind load balancing (1+1 active/active) Save/Restore configuration